

US010470797B1

(12) United States Patent Rai et al.

(10) Patent No.: US 10,470,797 B1

(45) **Date of Patent:** Nov. 12, 2019

(54) SYSTEMS AND METHODS FOR VASCULAR ACCESS

(71) Applicant: SlipStream, LLC, Morgantown, WV

(US)

(72) Inventors: Ansaar T. Rai, Morgantown, WV (US);

Lakshmikumar Pillai, Morgantown,

WV (US)

(73) Assignee: SlipStream, LLC, Morgantown, WV

(US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 16/513,667

(22) Filed: Jul. 16, 2019

Related U.S. Application Data

- (60) Provisional application No. 62/699,037, filed on Jul. 17, 2018.
- (51) Int. Cl. *A61B 17/34* (2006.01) *A61M 25/01* (2006.01)

(Continued)

(52) U.S. Cl. CPC A61B 17/3423 (2013.01); A61M 25/0102

A61B 1//3423 (2013.01); A61M 25/0102 (2013.01); A61M 25/0108 (2013.01);

(Continued)

(58) Field of Classification Search

CPC A61M 25/0108; A61M 25/06; A61M 25/0102; A61M 2025/018;

(Continued)

(56) References Cited

U.S. PATENT DOCUMENTS

6,068,638 A 5/2000 Makower 6,190,353 B1 5/2001 Mawoker et al. (Continued)

FOREIGN PATENT DOCUMENTS

JP H07171158 A 7/1995

OTHER PUBLICATIONS

"TorFlexTM Transseptal Guiding Sheath", Baylis Medical Company Inc, downloaded from internet May 17, 2018 (3 pages).

(Continued)

Primary Examiner — Katherine M Shi (74) Attorney, Agent, or Firm — Blair Walker IP Services,

(57) ABSTRACT

A system for accessing arterial vasculature from a venous insertion site includes a first elongate tubular member, a second elongate tubular member configured to be disposed within a lumen of the first elongate tubular member, an elongate crossing member including a distal tip comprising a frusto-conical outer surface, and configured to be disposed within a first lumen of the second elongate tubular member, and a stylet configured to be disposed within a lumen of the elongate crossing member, wherein placement of the second elongate tubular member, elongate crossing member, and stylet together through the lumen of the first elongate tubular member does not substantially straighten a curved distal portion of the first elongate tubular member, and wherein the elongate crossing member and stylet are removable from the first lumen of the second elongate tubular member when it is within the lumen of the first elongate tubular member with at least its distal end extending out of the first elongate tubular member.

28 Claims, 14 Drawing Sheets

